REMARKS/DISCUSSION OF ISSUES

Claims 1-9 are pending in the application. Claims 1-9 are rejected. Claims 3-5 and 9 are currently amended to improve their form.

The Examiner's acceptance of the drawing(s) and acknowledgement of receipt of the claim for priority and all priority documents is noted with appreciation.

The specification is objected to by the Examiner as lacking section headings. As section headings are recommended but not required by the M.P.E.P., Applicant respectfully declines to add section headings.

Claims 1, 2 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eliasson et al. (U.S. patent 4,983,881)(herein 'Eliasson') in view of Brines et al. (U.S. patent 4,499,159) (herein 'Brines').

Claim 1

With respect to claim 1, Eliasson discloses a high-power radiation source for visible light including a discharge space bounded by dielectrics, wherein the dielectrics are provided with luminescent coatings.

The invention is said to be based on the same discharge geometry as that of a UV high-power radiation source described in the Discussion of Background section of Eliasson.

The UV photons produced by excimer radiation in the discharge space are said to cause the luminescent coatings to fluoresce or phosphorescence when they impinge on it and consequently produce visible radiation.

Eliasson does not teach or suggest that the coatings contain a phosphor comprising a host lattice and neodymium(III) as an activator, as called for by claim 1.

Brines disclose an x-ray image converter using phosphors of lanthanum and gadolinium oxyhalides activated with thulium and co-activated with praseodymium or neodymium. The phosphors convert x-ray radiation into visible light through a process known as scintillation.

Brines teaches that partial substitution of lanthanum and gadolinium by praseodymium or neodymium results in more uniform scintillation intensities.

The Examiner has stated that in view of this teaching in the same field of endeavor, it would have been obvious to a skilled artisan to use a neodymium-activated phosphor in the device of Eliasson.

However, Brines is not in the same field of endeavor as Eliasson. The conversion of x-rays to visible light involves different energy levels than the conversion of uv radiation to visible light. Specifically, x-rays are much higher in energy than is uv radiation, so that the physical and chemical considerations in converting such high energy radiation to visible light are different than those involved in converting lower energy uv radiation to visible light.

Brines demonstrates the distinction between x-ray conversion and uv conversion in his discussion of certain phosphors of the prior art which were used to convert x-rays to uv radiation (col. 1, lines 30 and 31) and also in his concern to improve uniformity of scintillation intensities, which concern is unique to x-ray conversion. That is, the term 'scintillation' is reserved for the field of x-ray conversion, and is not used in the field of uv conversion.

Brines further demonstrates the unique problem of x-ray conversion requiring considerations specific to the mechanism of x-ray conversion in his discussion of the role of the praseodymium and neodymium ions.

It first appears that praseodymium and neodymium ions form associate groups with the thulium activator ion during the phosphor synthesis that lead to a more uniform distribution of said thulium activator ion in the phosphor lattice. The praseodymium and neodynium ions thereafter interact with the now more uniformly distributed thulium activator ion in the phosphor lattice to help quench light emission except in a narrow scintillation intensity range. Such quenching action, attributable to said impurity ions, is sufficiently intense to permit higher thulium activator ion levels in the phosphor material which also favors its more uniform distribution in the phosphor lattice. (col. 2, lines 21-33).

For all of the above reasons, the skilled artisan presented with the problem of converting uv radiation to visible radiation would not consider the teachings of Brines regarding conversion of x-rays to visible radiation to be relevant to the problem of converting uv radiation to visible radiation.

Accordingly, it would not have been obvious in view of Brines to use a neodymium-activated phosphor in the uv conversion device of Eliasson.

Claims 2, 5 and 6

While not conceding the patentability per se of claims 2, 5 and 6, these claims are nevertheless patentable by virtue of their dependency on claim 1.

Claim 7

With respect to claim 7, Eliasson states that the metal electrode may reflect uv light, but does not teach or suggest that the electrodes are composed of a metal or alloy that reflects UV-C light.

Claim 8

With respect to claim 8, Eliasson states that the metal electrodes may be coated with a uv-reflecting material, but does not teach or suggest that part of the discharge vessel is provided with a coating that reflects VUV and/or UV-C light.

Claim 9

Claim 9 is currently amended so as to be recast in the form of a method claim, not a mere recitation of intended use.

Neither of the applied references teaches nor suggest such a method.

Accordingly, the combination of Eliasson and Brines fails to render claims 1, 2 and 5-9 unpatentable, and the rejection under section 103 is in error and should be withdrawn.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eliasson in view of Brines and further in view of Juestel et al. (U.S. Patent Application Publication 2002/0195922) (herein 'Juestel').

However, only one of the Nd-activated phosphors claimed in claim 3 is disclosed by Juestel. This is the lanthanum yttrium phosphate phosphor. The other Nd-activated phosphors disclosed by Juestel are a yttrium gadolinium silicate phosphor, a yttrium gadolinium borate phosphor, and a yttrium gadolinium oxide phosphor.

Thus, the particular group of phosphors claimed in claim 3 is neither disclosed nor suggested by Juestel.

Accordingly, the combination of Eliasson, Brines and Juestel fails to render claim 3 unpatentable, and the rejection under section 103 is in error and should be withdrawn.

Moreover, Juestel is disqualified as a reference under 35 U.S.C. 103(c)(1), since at the time of Applicant's invention, both Applicant's invention and the invention described in Juesstel were commonly owed by, or subject to an obligation of assignment to a common assignee. See the "Guidelines Setting Forth a Modified Policy Concerning the Evidence of Common Ownership, or an Obligation of Assignment to the Same Person, as Required by 35 U.S.C. 103(c)," 1241 O.G. 96 (Dec. 26, 2000).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eliasson in view of Brines and further in view of Bechtel et al. (U.S. Patent 5,998,047) (herein 'Bechtel').

Bechtel discloses a plasma display device with a phosphor screen of a uv phosphor furnished with a coating which may include SiO_2 as a viscosity-increasing additive. See col. 5, lines 20 and 21.

However, claim 4 calls for a group of additives which includes MgO and Al_2O_3, neither of which is disclosed or suggested by Bechtel.

Moreover, Applicant's claimed group of oxides were selected for their reflective properties, not as viscosity-increasing agents. See page 5, lines 28-31 of Applicant's specification.

Thus, it would not have been obvious to use even SiO_2 as an additive in Applicant's coating.

Accordingly, the combination of Eliasson, Brines and Bechtel fails to render claim 4 unpatentable, and the rejection under section 103 is in error and should be withdrawn.

In view of the foregoing, Applicant respectfully requests that the Examiner withdraw the objection and rejections of record, allow all of the pending claims, and find the application to be in condition for allowance.

Respectfully submitted,

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